URBAN TREE INVENTORIES

Data collection options for consideration

Cost is not the only consideration when selecting a data collection system. Here are some questions to help determine the solution that best meets your needs and management capacity.

- Some programs or apps may be better suited for volunteers and community involvement while others may be focused on management planning and reporting.
  Ask: How is the data used? Who uses it?
- Some programs or apps may provide connectivity to management programs like i-Tree.
  Ask: What else can I do and how easy is it to do it?
- Different options for collecting and saving data may exist and may affect cost; whether data is hosted off- site on a company server or on a municipal server or is accessible via the internet. This may also affect how data is updated.
  Ask: Where is the data kept and how can I update it? Who has access to the data? What is the cost to maintain access and to update the data?
- GPS positioning can be collected within the app, although not as precisely as with a dedicated GPS unit, so a community must know its GIS abilities in order to determine or justify costs.
  Ask: Are we relying on GIS layers for planning or do we have no plans to use GIS layers in the immediate future? How precise do the locations need to be for our purposes?

List of Urban Tree Inventory Software

Paper & Volunteers	the simplest, most inexpensive method of data collection
PROS	**CONS**
Paper and pens are inexpensive, and volunteers are virtually free.	Data entry into a spreadsheet after data collection can result in entry errors.
This method can provide a general picture of the urban forest and its needs.	Inexperienced volunteers may not be able to identify tree species or assess tree conditions.
It can create community support for active management.	Data may be inconsistent and unreliable for practical management uses.
	Training and managing volunteers and entering data can be time consuming.

This method is highly labor intensive to collect, monitor, and difficult to keep updated, but it can be a useful approach where you have small areas you want to assess and manage, or where you have many volunteers and limited data collection tools.

Proprietary software & consultants	Programs designed specifically for tree inventory data collection. May be collected in-house or contracted with the consultant.
PROS	**CONS**
Many inventory programs can help with management with reporting and scheduling features (e.g. service requests, maintenance activities).	Municipality staff may not be sufficiently familiar with inventories and reports to know what options will meet their needs.
Data can be collected by experienced consulting staff, providing consistent results.	The cost of software may be too expensive for some communities.
A consultant can provide a summary report or a management plan.	Ownership of, or access to, the data may require additional subscription costs.
Technical support and software updates may be available for a period of time after purchase.	Staff must be trained to use the program and keep it updated.

Before selecting a proprietary program, check the program's ease-of-use, system requirements, and technical support/training availability. Some programs may have a free trial. When getting a quote for data collection by the consultant, your community should have a reasonable projection of the number of miles to cover and the average number of trees per mile. Quotes for data collection are typically given on a per tree basis. Ask for references and ask those other customers how the process and the software worked for them, pros and cons.

If you also want to contract out the data collection, review what they offer and whether they also provide data collection and reports. Determine if the consultant can deliver what your community is seeking. Ask to see an example of a summary report of the survey results and its management significance. This report should be part of an inventory, but it is not a "management" plan unless it gives specific recommendations and timelines for treatments, as well as budget information. Make sure the report or plan gives you what you need.

Be clear on how you will access the data after the inventory is complete and if there are any yearly or periodic fees for hosting your data in the cloud. Most all software includes GPS locations for development of a tree layer for the community's GIS. Many have apps and other features that allow easy updating of the data.

Mobile Apps for Apple or Android	data collected by in-house staff, contractors, or trained interns can be a cost- effective option – whether created in-house or adaptable existing programs may suit a community with GIS staff and resources; low/no-cost programs also exist
PROS	**CONS**
Data can be collected and uploaded directly to the cloud or to a computer via Wi-Fi.	The database must be manually updated if the community lacks equipment or connectivity.
Internal database design is simple and inexpensive, especially if you have ArcGIS and can use Survey123.	Some database interfaces for reporting are not very user friendly, during collection or managing from the office.
Data can be collected over time as resources and staffing allow.	
GPS location of trees to create a GIS layer for the community.	